

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
2 November 2006 (02.11.2006)

PCT

(10) International Publication Number
WO 2006/116182 A1

(51) International Patent Classification: -----
A61K 39/29 (2006.01) C07H 21/02 (2006.01)
C12P 21/06 (2006.01)

(74) Agent: MICHAUD, Susan, M.; Clark & Elbing LLP, 101
Federal Street, Boston, MA 02110 (US).

(21) International Application Number:
PCT/US2006/015241

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,
LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI,
NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG,
SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US,
UZ, VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date: 24 April 2006 (24.04.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/674,415 24 April 2005 (24.04.2005) US
60/674,546 25 April 2005 (25.04.2005) US

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,
RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (for all designated States except US): ACAM-
BIS INC. [US/US]; 38 Sidney Street, Cambridge, Massa-
chusetts 02139 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): PUGACHEV, Kon-
stantin, V. [RU/US]; 26 Harwood Road, Natick, Massa-
chusetts 01760 (US). GUIRAKHOO, Farshad [US/US];
39 Chestnut Street, Melrose, Massachusetts 02176 (US).
MONATH, Thomas, P. [US/US]; 21 Finn Road, Dhar-
vard, Massachusetts 01450 (US).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.



WO 2006/116182 A1

(54) Title: RECOMBINANT FLAVIVIRUS VACCINES

(57) Abstract: The invention provides recombinant flavivirus vaccines that can be used in the prevention and treatment of flavivirus infection. The vaccines of the invention contain recombinant flaviviruses including attenuating mutations.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/15241

A. CLASSIFICATION OF SUBJECT MATTER

IPC: A61K 39/29(2006.01);C12P 21/06(2006.01);C07H 21/02(2006.01)

USPC: 424/228.1;435/69.1;536/23.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424/228.1; 435/69.1; 536/23.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — A	ARROYO et al. Molecular Basis for Attenuation of Neurovirulence of a Yellow Fever Virus/Japanese Encephalitis Virus Chimera Vaccine (ChimeriVax-JE). Journal of Virology. January 2001, Vol. 75, No. 2, pages 934-942, especially abstract.	1-7, 10, 11, 22, 28 8, 9, 12-21, 23-27, 29-35
X — A	CHAMBERS et al. Yellow Fever/Japanese Encephalitis Chimeric Viruses: Construction and Biological Properties. Journal of Virology. April 1999, Vol. 73, No. 4, pages 3095-3101, especially abstract.	1-7, 10, 11, 22, 28 12-21, 23-27, 29-35

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"B" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

17 July 2006 (17.07.2006)

Date of mailing of the international search report

17 AUG 2006

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (571) 273-3201

Authorized officer

Stacy B. Chen

Telephone No. 571-272-1600

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US06/15241

Continuation of B. FIELDS SEARCHED Item 3:

APS, MEDLINE, CAS ONLINE

search terms: pugachev, guirakhoo, monath, flavivirus, dengue, japanese encephalitis, yellow fever, chimeric, recombinant, west nile, mutations, deletions, substitutions, envelope, viscerotropism